

TABLE 3.2-7 Estimated Radiation Doses to Members of the General Public and Cylinder Yard Workers at ETPP

Receptor	Radiation Source	Dose to Individual (mrem/yr)
Member of the general public (MEI) ^a	Routine site operations	
	Airborne radionuclides ^b	
	ETTP only	0.1
	Entire ORR	0.8
	Waterborne radionuclides ^c	3.7
	Direct gamma radiation	1.8 ^d
	Ingestion of wildlife	0.4 ^e
Cylinder yard worker	External radiation	32–92, ^f 107 ^g
Member of public or worker	Average natural background radiation in the State of Tennessee	42 ^h
DOE worker limit		2,000 ⁱ

- ^a The MEI is assumed to reside at an off-site location or undertake the specific activities that would yield the largest dose. An average person would receive a radiation dose much less than the values shown in this table.
- ^b Radiation doses from airborne releases were estimated by using an air dispersion model and took into account exposures from external radiation, inhalation, and ingestion of foodstuffs. Doses were estimated on the basis of the emission rate from ETPP only and from the entire ORR (DOE 2002d).
- ^c The radiation dose would result from eating 21 kg/yr (46 lb/yr) of the most contaminated accessible fish, drinking 730 L/yr (193 gal/yr) of the most contaminated drinking water, and using the shoreline near the most contaminated stretch of water for 67 h/yr (DOE 2002d).
- ^d Radiation doses would result from 250 hours of shoreline activity per year along the banks of Poplar Creek or near the K-1066-E cylinder yard (DOE 2002d).
- ^e Radiation doses would result from ingestion of two hypothetical worst-case geese (a combination of the heaviest goose harvested and the highest measured concentrations of cesium-137 and strontium-90 found in released geese (0.3 mrem/yr) and a hypothetical worst-case turkey (0.1 mrem/yr) (DOE 2002e). Deer hunt activities were cancelled because of security concerns during the final quarter of 2001 (DOE 2002d).
- ^f The range of annual average doses from 1991 through 1995 (Hodges 1996).
- ^g In 1998, the maximum worker exposure from painting cylinders was 107 mrem/yr (Cain 2002b).
- ^h Dose from natural background radiation ranges from 19 to 72 mrem/yr in Tennessee (DOE 2002d).
- ⁱ DOE administrative procedures limit DOE workers to 2,000 mrem/yr (DOE 1992), whereas the regulatory dose limit for radiation workers is 5,000 mrem/yr (10 CFR Part 835).